

76



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,000	12/19/2001	Nobuo Takeshita	2257-0202P-SP	8807
2292	7590	09/23/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CHU, KIM KWOK	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,000

Applicant(s)

TAKESHITA, NOBUO

Examiner

Kim-Kwok CHU

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-11 is/are rejected.
- 7) ☒ Claim(s) 2-5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/12/04 & 2/13/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Drawings

1. The drawings are objected to because Figures 16, 17 and 18 are not designated by a legend such as "Prior Art". The legend is necessary in order to clarify what applicant's invention is. See MPEP 608.02(g). Correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Kanada (U.S. Patent 6,757,236) in view of Wakabayashi et al. (U.S. Patent 5,905,255).

Kanada teaches an optical head structure very similar to that of the instant invention. For example, Kanada teaches the following means:

(a) as in claim 1, an objective lens 30 for bringing light emitted from a light source into focus on an information recording medium 7 (Figs. 1 and 3);

(b) as in claim 1, a lens holder 28 for holding the objective lens 30 (Fig. 1);

(c) as in claim 1, the lens holder 28 having a bearing hole 29 formed along a direction parallel to an optical axis of the objective lens 30 (Fig. 1); and

(d) as in claim 1, a support shaft 29 inserted in the bearing hole 29 (Fig. 1; column 4, lines 60 and 61).

However, Kanada does not teach the following:

(a) as in claim 1, an inclination drive unit;

(b) as in claim 1, a light detector for receiving the light reflected from the information recording medium and outputting information about inclination of the objective lens relative to the information recording medium on the basis of the light received; and

(c) as in claim 1, an inclination drive unit for, according to the information about the inclination, turning the lens holder on a first axis perpendicular to the support shaft.

Wakabayashi teaches an optical head tilt detection device having the following:

(a) an inclination drive unit 7a, 7b (Fig. 2; tilt control is the inclination drive unit);

(b) a light detector 4 for receiving the light reflected from the information recording medium and outputting information about inclination of the objective lens relative to

the information recording medium on the basis of the light received (Fig. 2); and

(c) an inclination drive unit for, according to the information about the inclination, turning the lens holder perpendicular to a first axis (Fig. 8; column 10, lines 39-48).

A biaxial actuator such as Kanada's requires its optical head maintaining a perpendicular direction to the disk. Hence, to compensate for any radial shift of an objective lens relative to the disk, it would have been obvious to one of ordinary skill in the art to replace Kanada's lens servo drive unit with Wakabayashi's tilt control servo means, because Wakabayashi's tilt sensing means can detect the tilting of the recording medium and then the tilt correction means can maintain the proper focusing of the emitted light beam.

4. Claims 6-8 and 9-11 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kanada (U.S. Patent 6,757,236) in view of Wakabayashi et al. (U.S. Patent 5,905,255) and Nii et al. (U.S. Patent 6,575,186).

Kanada in view of Wakabayashi teach an optical head tilting adjustment structure very similar to that of the instant invention. However, both Kanada and Wakabayashi do not teach the following:

- (a) as in claim 6, a fluid provided in the bearing hole;
- (b) as in claim 7, the fluid includes a magnetic fluid;

and

- (c) as in claim 8, lens holder further includes a permanent magnet located opposite the bearing hole and the magnetic fluid.

Nii teaches a bearing having the following:

- (a) a fluid provided 5 in the bearing hole 1 (Fig. 1);
- (b) the fluid 5 includes a magnetic fluid (Fig. 1; column

2m line 30); and

- (c) a permanent magnet 4 located opposite the bearing hole and the magnetic fluid 5 (Fig. 1).

To perform high speed and accurate rotation, it would have been obvious to one of ordinary skill in the art to use a magnetic fluid bearing such as Nii's as Kanada's lens holder, because the magnetic fluid acts as a lubricant in the bearing

and can suppress axial shake and improve rotation accuracy of the lens holder.

5. Claims 9-11 have limitations similar to those treated in the above rejection, and are met by the references as discussed above. In addition, claim 11 recites the following feature which is also disclosed by the prior art of Wakabayashi:

(a) as in claim 11, the lens holder further includes a permanent magnet 3a-3d (Fig. 9(a)).

Allowable Subject Matter

6. Claims 2-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 2, the prior art of record fails to teach or fairly suggest that the bearing hole has a hole diameter that increases as it approaches openings of the bearing hole from the center of the bearing hole, and the bearing hole has a wall that is generally circularly arcuate in cross-sectional shape.

As in claim 5, the prior art of record fails to teach or fairly suggest the following features:

(a) the inclination drive unit includes electromagnetic drive means comprising a first element mounted on the lens holder on a second axis perpendicular to both the support shaft and the first axis perpendicular to the support shaft, and a second element located opposite the first element; and

(b) the inclination drive unit includes electromagnetic drive means comprising a magnetic material fixedly mounted on the lens holder in close vicinity to the second element of the electromagnetic drive means.

The features indicated above, in combination with the other elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakazeki et al. (6,431,757) is pertinent because Nakazeki teaches a hydrodynamic type bearing unit.

Nakamura et al. (6,167,009) is pertinent because Nakamura teaches an optical head having a tilt control means.

Mohri et al. (6,134,058) is pertinent because Mohri teaches an optical head having a tilt coil.

Son et al. (6,282,161) is pertinent because Son teaches an optical head having a tilt driving unit.

Lee (5,956,188) is pertinent because Lee teaches an optical head having a tilt adjustment means.

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C.
20231 Or faxed to:

(703) 872-9306 (for formal communications intended for
entry. Or:

(703) 746-6909, (for informal or draft communications,
please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park
II, 2021 Crystal Drive, Arlington. VA., Sixth Floor
(Receptionist).

Any inquiry of a general nature or relating to the status
of this application should be directed to the Group
receptionist whose telephone number is (703) 305-4700.

Any inquiry concerning this communication or earlier
communications from the examiner should be directed to Kim CHU
whose telephone number is (703) 305-3032 between 9:30 am to
6:00 pm, Monday to Friday.

Kim-Kwok CHU
Kim-Kwok CHU
Examiner AU2653
September 16, 2004

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William Korzuch
WILLIAM KORZUCH
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